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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,616	04/14/2004	Takahido Mashino	396.43766X00	5091
20457 7590 02/07/2007 ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873			EXAMINER MCCRACKEN, DANIEL	
			ART UNIT	PAPER NUMBER
			1754	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/07/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/823,616

Applicant(s)

MASHINO, TAKAHIDO

Examiner

Daniel C. McCracken

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 4/14/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 7-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-12 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

Citation to the Specification will be in the following format (S. #, ¶) where # denotes the page number and ¶ denotes the paragraph number. Citation to patent literature will be in the form (Inventor #, LL) where # is the column number and LL is the line number.

#### *Election/Restrictions*

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-6, drawn to a fullerene whisker, classified in class 423, subclass 445 B.
- II. Claims 7-12, drawn to a production process for a whisker of a fullerene derivative, classified in class 423, subclass 461.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product can be made by another and materially different process, such as a gas phase treatment.

Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

During a telephone conversation with William Solomon on January 24, 2007 a provisional election was made with traverse to prosecute the invention of group I, claims 1-6. Affirmation of this election must be made by applicant in replying to this Office action. Claims 7-12 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

### ***Specification***

A substitute specification in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) is required. The substitute specification filed must be accompanied by a statement that it contains no new matter. It would appear as if this is an English translation of a Japanese patent application resulting in grammatical inconsistencies throughout. *See e.g.* (S. 3, 2). ("However, if this is irradiated with an electron beam, *it becomes insoluble* in an organic solvent, and *therefore it is tried* to use the methanofullerene described above for an electron beam resist making use of this property (refer to, for example, Japanese Patent Application Laid-Open No. 143074/1999).") (emphasis added) (exemplary of lack of consonance between subjects and verbs throughout the Specification).

### ***Information Disclosure Statement***

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

### ***Drawings***

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because they are unintelligible. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action

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to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 5 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Figures 1 and 2 are insufficient in conveying to one of ordinary skill in the art that Applicants possessed a fullerene derivative of the dimensions claimed at the time of the invention, noting that these dimensions are larger than fullerenes. This rejection may be obviated with the substitution of photographs that show the subject matter and its dimensions.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

At the outset, it is noted that “even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted). *See also* MPEP 2113, *et seq.*

Claim 1 is drafted in product-by-process form (i.e. a fullerene whisker (a product) . . . obtained by chemically modifying a fullerene (a process)). Thus, for purposes of determining novelty under 35 U.S.C. 102, the only concern is whether the reference teaches “a fullerene whisker.” No patentable weight is assigned to the additional process limitations recited in Claims 2-6, which depend directly or indirectly upon Claim 1.

As to what meaning to attach to “a fullerene whisker,” generally speaking, claim limitations are afforded their broadest reasonable interpretation. *See* MPEP 2111 *et seq.* Claim terms are given their “plain meaning” unless they are defined in the specification. MPEP 2111.01. In the instant application, Applicants have defined a fullerene whisker as a fullerene derivative. *See* (S. 8, 5) (“*The fullerene whisker of the present invention comprises a fullerene derivative obtained by chemically modifying fullerene. [sic]*”) (emphasis added). Thus, a reference showing a “fullerene derivative” will anticipate Applicants claims.

Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Applicants’ admissions.

“[A] statement by an applicant during prosecution identifying certain matter not the work of the inventor as “prior art” is an admission that the matter is prior art.” *Riverwood Int’l Corp. v.*

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*R.A. Jones & Co.*, 324 F.3d 1346, 1354, 66 USPQ2d 1331, 1337 (Fed. Cir. 2003) (citations omitted). Applicants stated in their specification:

**It is known** that such **fullerenes** have an exceptionally high reactivity for a compound having an aromaticity and that **various substituents can be added to a double bond in a six-membered ring-six-membered ring-connecting part, and the number of these substituents added can be controlled to some extent by reaction conditions.** Further, when plural substituents are introduced, position isomers are formed, and the kind and the forming ratio thereof are determined according to the kind of the substituents.

(S. 2, 3) (emphasis added). Thus, Applicants have made a statement that a fullerene derivative (i.e. adding a substituent to a fullerene) is old and known in the art. Applicants further state:

**This methanofullerene** has a structure in which, as shown in the structural formula (I), a carbon atom is cross-linked with a network of a six-membered ring and a five-membered ring of carbon atoms constituting fullerene and in which side chains (R1 and R2) are introduced into the carbon atom. In the structural formula (I) described above, a case in which cross-linking is made with the carbon atom at one portion is described, but this cross-linking may be made at plural portions. **This methanofullerene can readily be produced by a process which has so far been publicly known.**

(S. 9, 2) (emphasis added). Accordingly, and in light of the law surrounding product-by-process claims, Claims 1-6 are anticipated by Applicants admissions.

Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Jan C. Hummelen, et al, *Preparation and Characterization of Fulleroid and Methanofullerene Derivatives*, 60 J. Org. Chem. 532 (1995). Hummelen describes a fullerene derivative, including methanofullerenes. *See generally* Hummelen, "Abstract." Examiner makes record of the

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identical structure recited in Applicants specification. *Compare* (S. 9 “structural formula I”) with Hummelson, 60 J. Org. Chem. at 532 (“M1”).

Claims 1-6 are rejected under 35 U.S.C. 102(b) and alternatively under 35 U.S.C. 102(a) as being anticipated by WO99/43358 (US 6,506,928) to Hirsch. For sake of convenience, US 6,506,928 will be treated as a translation.

Hirsch discloses a fullerene derivitave. *See generally* (Hirsch 3-4, “Scheme 1”). Hirsch also discloses the use of malonic acid derivative. (Hirsch 2, 1-6). Two-carbon-atom derivatives are taught. (Hirsch 1, 49). Buckminsterfullerene, or C<sub>60</sub> is explicitly taught. *See e.g.* (Hirsch 2, 45-47).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel C. McCracken whose telephone number is (571) 272-6537. The examiner can normally be reached on Monday through Friday, 9 AM - 6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Stanley S. Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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